

#### **IV. AMENDMENTS TO THE CLAIMS**

1. (Currently Amended) A cryo pump including:  
a cryogenic refrigerator;  
a first-stage panel and a generally cylindrically-shaped heat shield plate that are cooled in a first stage of the cryogenic refrigerator; and  
a second-stage panel that is surrounded ~~in~~by the heat shield plate, is cooled by a second stage of the cryogenic refrigerator, and has an absorbent,  
the cryo pump further comprising:  
a notch, provided in and extending circumferentially about the heat shield plate, for allowing for entrance of gas molecules; and  
an additional shield disposed apart from the heat shield plate and adjacent the notch for preventing entrance of heat due to radiation from a room-temperature cryo pump chamber to the second-stage panel, the additional shield being sized relative to the notch such that the gas molecules outside the second-stage panel meander through the notch and around at the additional shield in order to enter into the second-stage panel.

2. (Original) The cryo pump according to claim 1, wherein the notch and the additional shield are positioned on the heat shield plate surrounding the second-stage panel therein.

3. (Original) The cryo pump according to claim 1 or 2, wherein the additional shield is supported by the heat shield plate via an additional shield supporting member.

4. (Previously Presented) The cryo pump according to claim 1, wherein the refrigerator is a horizontal type and the additional shield has a C-shaped cross section in which a portion corresponding to the refrigerator is cut.

5. (Previously Presented) The cryo pump according to claim 1, wherein the additional shield is formed in such a manner that a portion thereof having a C-shaped cross section has a length covering the second-stage panel.

6. (Previously Presented) The cryo pump according to claim 1, wherein the refrigerator is a horizontal type or a vertical type and the additional shield is tubular.

7. (Original) The cryo pump according to claim 1 or 2, wherein the additional shield is a concave or convex portion provided on the heat shield plate, and an opening for allowing for entrance of gas molecules is provided on a side face of the concave or convex portion.

8. (Previously Presented) A sputtering apparatus comprising the cryo pump according to claim 1.

9. (Previously Presented) A semiconductor manufacturing apparatus comprising the cryo pump according to claim 1.